

# **WASHINGTON STATE CHILDHOOD BLOOD LEAD SCREENING RECOMMENDATIONS**

**November 2000**





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## **Executive Summary**

In 1997, the Centers for Disease Control and Prevention (CDC) withdrew their former recommendation for universal childhood lead screening and recommended that each state develop its own screening guidelines. In 1999, the Washington State Department of Health (DOH) formed an advisory committee to recommend screening guidelines for Washington State. The advisory committee included health care providers, representatives from the state and local health departments, Medicaid, managed care and private insurance organizations, and community action groups.

Only about 3 percent of children in Washington State ever have a blood lead test. Data collected by DOH indicate that the prevalence of elevated blood lead levels is very low among children in Washington State. The Childhood Blood Lead Registry has maintained a record of all blood lead test results on Washington children since May 1993. During this time, about 4 percent of the children tested have had an elevated blood lead level. Because the few children who are tested are probably selected for testing by their health care providers because they have risk factors that other children do not have, they are not necessarily a representative sample of children in Washington State. Between 1994 and 1997, DOH conducted residential lead surveys in Bellingham, Seattle, Spokane, Tacoma, and Yakima. These surveys were targeted to neighborhoods with high concentrations of old housing and poverty, where children were thought to be at high risk of lead poisoning. A high prevalence of elevated blood lead levels was found in Yakima (8.4 percent), but the prevalence of elevated blood lead levels in the other four cities combined was only 1.2 percent. In 1999, DOH conducted a representative statewide survey to determine the prevalence of elevated blood lead levels in one- and two-year old children. The survey also oversampled Hispanic children in Central Washington and was able to determine the prevalence of elevated blood lead levels among these children. The survey estimated the prevalence of elevated blood lead levels to be 0.9 percent (95 percent confidence interval [CI], 0—1.9 percent) among all one- and two-year old children, and 3.8 percent (95 percent CI, 0—7.8 percent) among one- and two-year old Hispanic children in Central Washington.

The advisory committee considered these data before making recommendations to DOH. Based on these recommendations, DOH has produced lead screening guidelines for health care providers in Washington State and produced a set of goals for monitoring lead levels in Washington children.

In summary, DOH does not recommend either universal or targeted screening of children for lead poisoning. DOH does not recommend the use of a risk factor questionnaire to select children for lead testing, because no risk factor questions have been shown to be effective for identifying asymptomatic children for whom blood lead testing is appropriate. Health care providers should continue to use clinical judgment to identify children who should be tested. DOH should continue to monitor blood lead levels in children statewide and should conduct studies in Central Washington to determine whether guidelines for targeted screening can be developed there.





## Introduction

In 1991, the Centers for Disease Control and Prevention (CDC) called for universal blood lead screening among children age one- to six-years old in the United States. This recommendation was never fully implemented in many parts of the country, including Washington State, where only about 3 percent of children ever receive blood lead tests. Since 1991, the prevalence of elevated blood lead levels (EBLLs)<sup>1</sup> among children in the United States has declined substantially and the CDC has also recognized that the prevalence of EBLLs varies substantially across the different regions of the United States. In 1997, the CDC produced new recommendations<sup>2</sup> that call for each state to develop screening guidelines appropriate for the state.

The CDC recommendations provide guidance as to how each state should develop screening guidelines and the process of developing the guidelines is tied to CDC grants for surveillance and prevention of childhood lead poisoning. The recommendations call for each state to form an advisory committee consisting of health care providers and representatives from local health departments, managed care organizations, Medicaid, private insurance organizations, community groups, and concerned parents. A list of Washington State's advisory committee members is included in Appendix I. We attempted to recruit a parent of a lead-poisoned child, and representatives from environmental activist and Native American tribal organizations, but we were unsuccessful.

The committee was charged with deciding appropriate screening for different areas of the state. When a state has reliable data on the prevalence of childhood lead poisoning, the CDC recommends universal screening (blood lead tests for all children) in areas where the prevalence of lead poisoning is 12 percent or higher, targeted screening (blood testing after risk assessment with a risk factor questionnaire) in areas where the prevalence of lead poisoning is between 3 percent and 12 percent, and no routine screening in areas where the prevalence is below 3 percent. In the absence of routine screening, states should use other methods to monitor blood lead levels, such as periodic focused surveys and routine review of laboratory reports of blood lead level tests.

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<sup>1</sup> For children, a blood lead level of 10µg/dL or higher is considered elevated.

<sup>2</sup> Centers for Disease Control and Prevention. *Screening young children for lead poisoning: guidance for state and local public health officials*. Atlanta: CDC, 1997.



## Childhood Lead Poisoning Prevalence in Washington State

There are three primary sources of data concerning the prevalence of childhood lead poisoning in Washington State: The Childhood Blood Lead Registry (CBLR); the 1999 statewide Childhood Lead Prevalence Survey; and, the Five Cities surveys conducted between 1994 and 1997.

### The Childhood Blood Lead Registry

The CBLR maintains a record of all blood lead tests performed on Washington children since May 1993. The percentage of children tested in Washington is low (about 3 percent), and we do not know how health care providers decide which children to test. Therefore, the registry data may not be representative of all children in Washington, but it does help to illustrate regional differences and trends over time. Table 1 shows the percentage of tested children who had elevated lead levels for each year from 1993 to 1998. The percentage of tested children who were found to have elevated lead levels is higher than was found in the statewide survey (0.9 percent in the survey versus 2.8 percent in the registry in 1998), suggesting that health care providers selectively test children who are at higher than average risk. The test results shown in Table 1 exclude tests reported from Madigan Army Medical Center, where all tests on military dependents in Washington State are done, because the military's screening practices are so different from that of other health care providers in the state. The military tests all children in their system when they are one year old and performs about one third of the tests done on children in Washington State. Test results performed at Madigan are shown separately in Table 2.

The registry allows us to look at regional differences in prevalence of elevated blood lead levels (see Table 3). The data suggest that children in Central Washington are at higher risk than children in other parts of the state.

Table 1. Children age 0 to 6, percent elevated by year.

Year	Number of children	Percent above 10µg/dL
1993	837	4.8
1994	1481	4.9
1995	1653	8.3
1996	3190	2.9
1997	2479	3.7
1998	2247	2.8
1993-1998	11887	4.2

*excluding tests from Madigan Army Medical Center*

Table 2. Madigan children age 0 to 6, percent elevated by year.

Year	Number of children	Percent above 10µg/dL
1994	1318	0.5
1995	1668	0.4
1996	1216	0.4
1997	1235	0.2
1998	1014	0.3
1994-1998	6453	0.4

Table 3. Percent of children with elevated blood lead levels by county, 1993—1998.

County	Number of children	Percent above 10µg/dL
Walla Walla	325	10.8
Chelan	1272	9.1
Yakima	1246	5.3
Kitsap	380	5.0
Pierce	740	4.7
Adams	72	4.2
King	1991	4.0
Lewis	52	3.8
Okanogan	54	3.7
Spokane	1567	3.4
Whatcom	251	2.8
Snohomish	428	2.8
Thurston	427	2.6
Unknown county	170	2.4
Skagit	141	2.1
Cowlitz	890	1.9
Island	58	1.7
Clark	120	1.7
Whitman	183	1.6
Grant	127	1.6
Benton	814	1.0
Franklin	369	0.8
Stevens	51	0.0
State Total	11887	4.2

*excluding tests from Madigan Army Medical Center*

## The Five Cities Studies

The Environmental Health Division of the Department of Health conducted targeted residential surveys in Bellingham, Seattle, Spokane, Tacoma, and Yakima between 1994 and 1997. These surveys were targeted towards neighborhoods that had, according to Census data, old housing, low-income residents, and a high proportion of children under the age of three. The surveys included environmental sampling in the homes of eligible children, as well as blood lead testing. The overall prevalence of elevated blood lead tests is shown in Table 4. These studies suggest a low risk of lead poisoning in most of the state, with a higher risk in Yakima than in the other cities.

## The Statewide Childhood Blood Lead Prevalence Survey

The Epidemiology Office of the Department of Health conducted a statewide survey in 1999 to estimate the prevalence of elevated blood lead levels in one- and two-year old children. The survey was designed to be representative of all one- and two-year old children in the state, and of one- and two-year old Hispanic children in nine counties in Central Washington (Adams, Benton, Chelan, Douglas, Franklin, Grant, Okanogan, Walla Walla, and Yakima). From the survey results, we estimate that 0.9 percent (95 percent CI, 0–1.9 percent) of one- and two-year old children in Washington have elevated blood lead levels, and that 3.8 percent (95 percent CI 0–7.8 percent) of one- and two-year old Hispanic children in Central Washington have elevated blood lead levels.

The survey results are consistent with the results from the CBLR and the Five Cities studies in suggesting a low prevalence of elevated blood lead levels in most of the state, with a somewhat higher prevalence in Central Washington.

Table 4. Blood lead test results from the Five Cities surveys.

City	Number of children	Number above 10µg/dL	Percent above 10µg/dL
Bellingham	126	1	0.8
Seattle	109	0	0
Spokane	86	0	0
Tacoma	106	4	3.9
Yakima	154	13	8.4
All five cities	581	18	3.1



## **Department of Health Recommendations**

The following recommendations to health care providers and DOH are based on the recommendations of the advisory committee to DOH. The full text of the advisory committee recommendations is in Appendix II. The recommendations were developed after the advisory committee considered the prevalence data for Washington State.

### **Recommendations to Health Care Providers**

1. Because of the low prevalence of elevated blood lead levels in children in Washington State, the Washington State Department of Health (DOH) does not recommend targeted or universal testing of asymptomatic children for lead poisoning. DOH does not recommend the use of a risk factor questionnaire to identify children who should have a blood lead test because no risk factor questions have been shown to be effective in Washington State for identifying asymptomatic children for whom blood lead testing is appropriate. DOH has found a higher risk for elevated blood lead levels in children in nine counties in Central and Eastern Washington (Adams, Benton, Chelan, Douglas, Franklin, Grant, Okanogan, Walla Walla, and Yakima), and DOH will conduct additional study in these counties to determine whether guidelines for targeted screening can be developed.
2. Health care providers should use clinical judgment to identify children who should be tested for blood lead levels. A blood lead test should be performed whenever a parent, guardian, or health care provider suspects that a child is at special risk for lead exposure or if a health care provider finds signs or symptoms consistent with lead overexposure (e.g., anemia, failure to thrive). Additional risk factors health care providers should consider include:
  - Age of housing
  - Renovation and remodeling in old homes
  - Parental occupations involving lead exposure
  - Children observed eating paint chips or showing symptoms of pica
  - Socioeconomic and educational status
  - Former residence outside Washington State

## **Recommendations to the Department of Health**

1. DOH should conduct these activities to monitor childhood blood lead levels in Washington State:
  - Conduct periodic focused surveys to monitor or investigate suspected pockets of lead exposure
  - Routinely review blood lead level data from the Childhood Blood Lead Registry
  - Issue public health alerts about newly identified sources of lead exposure
2. In the nine counties in Central and Eastern Washington (Adams, Benton, Chelan, Douglas, Franklin, Grant, Okanogan, Walla Walla, and Yakima) where children are at higher risk for elevated blood lead levels, DOH should conduct additional studies to determine whether guidelines for targeted screening can be developed.



## **Appendix I**

### **Advisory Committee on Childhood Lead Screening**

Nancy Goodyear, PhD	University of Washington (representing the Clinical Laboratory Advisory Council)
Art Gordon	Urban League of Metropolitan Seattle
Beverly Green, MD	Group Health Cooperative of Puget Sound, Committee on Prevention
Joel Kaufman, MD, MPH	University of Washington (representing University of Washington School of Public Health & Community Medicine)
Teresa Marx	Head Start Program (representing Washington State Migrant Council)
Kimble McClung	Quality Improvement and Utilization Management (representing Community Health Plan of Washington)
William O. Robertson, MD	Washington Poison Center (also representing the Washington Chapter of the American Academy of Pediatrics)
Tina Saxton	Tacoma Urban League
Pat Wells	Spokane Regional Health District (representing Washington State Association of Local Public Health Officials)
Margaret Wilson, ARNP	Washington State Department of Social and Health Services, Family Services Section
Sharon Drozdowsky	Washington State Department of Labor and Industries, Occupational Lead Exposure Registry
Maxine Hayes, MD	State Health Officer, Washington State Department of Health
Juliet VanEenwyk, PhD, MS	State Epidemiologist, Washington State Department of Health
Lewey Kittle	Washington State Department of Health, Environmental Health Programs
Eric Ossiander (staff)	Washington State Department of Health
Marcia Mueller (staff)	Washington State Department of Health



## Appendix II

Full text of the recommendations from the Advisory Committee on Childhood Lead Screening to the Washington State Department of Health:

1. Because of the low prevalence of elevated blood lead levels in children in Washington State, the Washington State Department of Health (DOH) does not recommend universal blood lead testing of children for lead poisoning. DOH also does not recommend the use of a risk factor questionnaire to identify children who should have a blood lead test. No risk factor questions have been shown to be effective in Washington State for identifying asymptomatic children for whom blood lead testing is appropriate.
2. DOH does not recommend targeted or universal testing of asymptomatic children for blood lead levels in most of the state, consisting of these 30 counties: Asotin, Clallam, Clark, Columbia, Cowlitz, Ferry, Garfield, Grays Harbor, Island, Jefferson, King, Kitsap, Kittitas, Klickitat, Lewis, Lincoln, Mason, Pacific, Pend Oreille, Pierce, San Juan, Skagit, Skamania, Snohomish, Spokane, Stevens, Thurston, Wahkiakum, Whatcom, and Whitman. However, in these 30 counties the following actions are appropriate:
  - DOH should conduct periodic focused surveys to monitor or investigate suspected pockets of lead exposure.
  - DOH should routinely review blood lead level data from the Childhood Blood Lead Registry.
  - DOH should issue public health alerts about newly identified sources of lead exposure.
3. DOH has found a higher risk for elevated blood lead levels in children in nine counties in Central and Eastern Washington (Adams, Benton, Chelan, Douglas, Franklin, Grant, Okanogan, Walla Walla, and Yakima). At the present time, DOH does not recommend targeted or universal testing of asymptomatic children for blood lead levels in these nine counties, however, additional study in these counties is warranted to determine whether guidelines for targeted screening can be developed. A blood lead test should be performed whenever a parent, guardian, or health care provider suspects that a child is at special risk for lead exposure, or if a health care provider finds signs or symptoms consistent with lead overexposure.
4. Health care providers should use clinical judgment to identify children who should be tested for blood lead levels. A blood lead test should be performed whenever a parent, guardian, or health care provider suspects that a child is at special risk for lead exposure, or if a health care provider finds signs or symptoms consistent with lead overexposure (e.g. anemia, failure to thrive). Additional risk factors health care providers should consider include:
  - Age of housing
  - Renovation and remodeling in old homes
  - Parental occupations involving lead exposure
  - Children observed eating paint chips or showing symptoms of pica.
  - Socioeconomic and educational status